

Preamble

Groundwater quality and groundwater quantity are closely related and the approaches to understanding each are similar. For that reason, the 2 goals and the overall guiding principle are recognized in this action plan.

Regional Goals as adopted by the Kansas Water Authority, August 2015

Guiding Principle:

Over the next 50 years, there needs to be an adequate, sustainable and affordable quality water supply in the Missouri Region, while protecting Tribal water rights and sacred and cultural sites. All government agencies, local through state, shall vigorously uphold and enforce all water conservation and management rules and regulations throughout the state.

Priority Goal #1: Since groundwater quality is not well known, compile existing and collect additional data over the next 5 years to establish a baseline. Within 3 years after the baseline is established, a plan to implement best management practices will be developed to maintain and improve existing conditions. Monitoring and reevaluation of groundwater quality conditions and should continue at 5 year intervals.

Priority Goal #3: Collect additional information to improve safe yield estimate of groundwater and tributary streams within 3 years. Place a moratorium on additional permits until safe yield is identified. Once determined, only issue permits that do not exceed that yield. Safe yield should then be continuously monitored.

Action Steps

- ❖ **Evaluate what is known about groundwater quantity and quality in glacial, alluvial and bedrock aquifers in the Missouri Region**
 - ◇ Any and all available information about groundwater quantity and quality will be collected and compiled.
 - ◇ Digital database from the collected historical and online existing data would be constructed.
 - ◇ Digital maps of updated bedrock surface topography, saturated aquifer thickness, pre-glacial drainage ways, water use, and groundwater quality from digital databases would be prepared
 - ◇ An assessment report would be prepared that includes:
 - ◇ A determination of groundwater in storage and groundwater quality conditions in the glacial, alluvial and bedrock aquifers in the area.
 - ◇ A determination of the greatest needs for collection of additional data.
 - ◇ Recommendations on the need for, and number and location of wells to allow for well level and quality monitoring on a continuing basis.
 - ◇ This phase would be conducted by the KGS for at a cost of \$50,000. The work would take 12 months, beginning August 2017.
- ❖ **Collection of additional data and re-evaluation of groundwater information**
 - ◇ Based on needs as determined in the evaluation phase, obtain a scope of work on collection of additional data that would improve the characterization of the glacial, alluvial and bedrock aquifers. Main expected field activities would include: drilling, hydraulic testing, and groundwater sampling and analysis.
 - ◇ Enter new data into databases developed in the evaluation phase.

- ◇ Re-evaluate groundwater recharge estimates at a more detailed scale than the currently available potential annual recharge estimates based on soils.
- ◇ Combine existing and new data to establish safe groundwater yields and a groundwater quality baseline.
- ◇ On the basis of future climate and water usage conditions, establish a plan to periodically update safe yield estimates of groundwater resources.
- ◇ This phase would be a minimum of 18 months, as determined in the evaluation phase. Cost would be determined in Phase 1.
- ❖ **Maintain and Improve groundwater quality conditions**
 - ◇ Evaluate groundwater quality protection practices based on needs as determined in the assessment.
 - ◇ Within 3 years after the baseline is established, a plan to implement best management practices will be developed to maintain and improve existing conditions.
- ❖ **Ongoing monitoring and evaluation**
 - ◇ Expand groundwater level monitoring wells as determined during Assessment phase.
 - ◇ Monitoring and reevaluation of groundwater quality conditions should continue at 5 year intervals.